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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/748,005 | 12/27/2000 | Masaharu Okazaki | 201359US0 | 4684 |
| 22850 | 7590 | 04/02/2004 | | EXAMINER |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | | WONG, EDNA |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1753 | |

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|----|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/748,005 | OKAZAKI ET AL. | |
| | Examiner | Art Unit | |
| | Edna Wong | 1753 | cb |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 4 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1 and 2 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12/27/00</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

Election/Restrictions

Applicant's election with traverse of Group I, claims **1 and 2**, in the Response to Requirement for Restriction dated March 3, 2004 is acknowledged. The traversal is on the ground(s) that there is nothing in the record to suggest that the "sand reclaiming" process could be used as Examiner Tran has alleged. This is not found persuasive because this Examiner finds that another materially different apparatus such as a batch process apparatus disclosed in **Moy et al.** (US Patent No. 6,159,892) [col. 11, lines 47-55; and Fig. 1] can practice the process as presently claimed.

The requirement is still deemed proper and is therefore made FINAL.

Accordingly, claims **3 and 4** are withdrawn from consideration as being directed to a non-elected invention.

Specification

The disclosure is objected to because of the following informalities:

page 13, line 7, a -- . -- (period) should be inserted after the number "1".

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the

specification.

Claim Objections

Claim 1 is objected to because of the following informalities:

Claim 1

line 2, it is suggested that the word "by" be amended to the phrase -- comprising the steps of: --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1

line 5, the use of the words "which comprises" and "by" (from claim 1, line 2) to introduce the method steps is confusing.

lines 5-6, "the chemical reaction solution containing molecules to be reacted" lacks antecedent basis.

lines 7-9, it appears that the “mesopores having diameter on the order of several nanometers and length on the order of several ten nanometers” are further limiting the multiplicity of nanometer-order pores recited in claim 1, lines 4-5. However, it is unclear if they are.

lines 9-10, “the reaction thereof” (singular) lacks antecedent basis. See claim 1, line 2.

Claim 2

line 3, “the reaction” (singular) lacks antecedent basis. See claim 2, line 2.

lines 3-4, it appears that “wherein the reaction is activated through irradiation with laser light” is further limiting the reaction-initiating/accelerating means recited in claim 1, lines 9-10. However, it is unclear if it is.

If it is, then it is suggested that the claim limitation be amended to -- wherein the reaction-initiating/accelerating means is laser light --.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **1 and 2** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Moy et al.** (US Patent No. 6,159,892).

Moy teaches a method for improving selectivity in liquid phase chemical reactions comprising the steps of:

(a) flowing a reaction solution (= a reactant in fluid phase) [col. 11, lines 28-32] through a solution reaction bed packed with particles (= a fibril aggregate) [col. 4, line 61 to col. 5, line 3] having a multiplicity of nanometer-order pores (col. 4, lines 11-26); which comprises

(b) flowing the chemical reaction solution containing molecules to be reacted through mesopores having diameter on the order of several nanometers and length on the order of several ten nanometers (= the reactants move through the bed and react), while simultaneously activating the reaction thereof with reaction-initiating/accelerating means (= a catalyst) [col. 12, lines 32-38; and col. 12, line 58 to col. 13, line 6].

Moy does not teach wherein the solution reaction bed is a solution reaction column; and wherein the reaction is activated through irradiation with laser light.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Moy with wherein the solution reaction bed is a solution reaction column because

Moy teaches that the process may be a batch process or a continuous process using liquid phase slurry reactors, trickle bed reactors or fluidized bed reactors (col. 11, lines 28-40). It is deemed that a column-, tube- or cylindrical-shaped reactor is a conventional reactor shape in the art.

Furthermore, it would not have appeared desirable to one having ordinary skill in the art to have moved the reactants through a box-shaped bed of the supported catalyst because the edges or corners of the box-shaped bed would have made the flow uneven.

As to wherein the reaction is activated through irradiation with laser light, Moy teaches that desirable active catalysts are the platinum group metals (col. 7, lines 19-22). Irradiating a platinum group metal catalyst with laser light would have caused the reactant contacting the catalyst to accelerate its transition over an activation barrier energy.

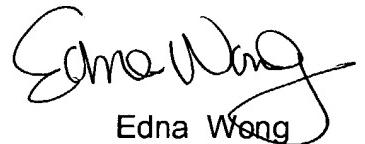
Furthermore, one having ordinary skill in the art would have had more control over the activation of the catalyst, and thus, would have had more control over the progression of the reaction to form the selected products, by regulating the laser light.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 5:00 pm, alt.

Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Edna Wong
Primary Examiner
Art Unit 1753

EW
March 31, 2004